



BRITISH
MUSEUM
7 JUL 22
NATURAL
HISTORY.

ANNUAL REPORT

OF THE COUNCIL

OF THE

YORKSHIRE

PHILOSOPHICAL SOCIETY

FOR THE YEAR

1921

PRESENTED TO THE ANNUAL MEETING,

FEBRUARY 13th, 1922.

PRINTED BY ORDER OF THE COUNCIL.

1922.

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FORM
OF A
BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following form :—

I give and bequeath to the Trustees, for the time being, of the Society established at York, called "The Yorkshire Philosophical Society," for the use of the said Society, the sum of [] to be paid out of such part of my personal estate. [Or here enumerate the effects or property intended to be bequeathed.] And I direct that the receipt of the Treasurer of the said Society, for the time being, shall be an effectual discharge to my Executors for the said legacy.

The Yorkshire Philosophical Society.

(Founded 1822).

Patrons:

HIS MAJESTY THE KING. HER MAJESTY THE QUEEN.
QUEEN ALEXANDRA.

Trustees:

GEORGE A. AUDEN, M.D. CHAS. E. ELMHIRST.
RT. HON. LORD DERAMORE. SIR GEORGE GIBB, LL.B.
EDWIN GRAY, M.A., LL.M., J.P.

President:

WILLIAM HERBERT ST. QUINTIN, D.L., J.P., F.Z.S.

Vice-Presidents:

JAMES MELROSE, J.P. EDWIN GRAY, M.A., LL.M., J.P.
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H. M. PLATNAUER, B.Sc. LORD BOLTON.
H. C. BARSTOW. W. COOPER.
FRANK GREEN. CHAS. E. ELMHIRST.
H. J. WILKINSON.

Council:

Elected 1920... W. HARVEY BROOK.

CECIL H. COBB, M.A.

Rev. A. RAINES.

Col. W. A. WHITE, J.P.

Elected 1921... W. A. EVELYN, M.A., M.D. (Cantab).

Rev. W. JOHNSON, B.A., B.Sc.

P. L. NEWMAN, M.A., F.I.A.

J. SCOTT.

Elected 1922... W. BELLERBY.

GEORGE BENSON, A.R.I.B.A.

EDMUND M. SMITH, M.D., D.P.H.

J. TRIFFITT.

Hon. Treasurer:

EDWIN GRAY, M.A., LL.M., J.P.

Hon. Secretary:

CHAS. E. ELMHIRST.

COMMITTEES—

<i>General Purposes Committee :</i>	<i>Museum Committee :</i>
W. HARVEY BROOK.	J. BACKHOUSE.
Dr. W. A. EVELYN.	GEORGE BENSON.
A. HURST.	W. HARVEY BROOK.
Rev. W. JOHNSON.	Dr. W. A. EVELYN.
Dr. E. M. SMITH.	A. HURST.
J. TRIFFITT.	Rev. W. JOHNSON.
S. WALKER.	H. M. PLATNAUER.
H. J. WILKINSON.	W. H. ST. QUINTIN.
C. E. ELMHIRST, <i>Secretary.</i>	J. SCOTT.
	Rev. CANON SOLLOWAY.
	S. WALKER.
	H. J. WILKINSON.
	Dr. COLLINGE, <i>Secretary.</i>

<i>Garden Committee :</i>	<i>Centenary Executive Committee :</i>
CECIL H. COBB.	J. BACKHOUSE.
W. BELLERBY.	W. HARVEY BROOK.
A. HURST.	C. E. ELMHIRST.
Col. W. A. WHITE.	Dr. W. A. EVELYN.
H. J. WILKINSON.	J. H. GOSTLING.
S. WALKER, <i>Secretary.</i>	A. HURST.
	Rev. W. JOHNSON.
	Dr. E. M. SMITH.
<i>Lecture Committee :</i>	J. TRIFFITT.
CECIL H. COBB.	S. WALKER.
Rev. A. RAINÉ.	H. J. WILKINSON.
C. E. ELMHIRST, <i>Secretary.</i>	Dr. COLLINGE, <i>Secretary.</i>

The President, Secretary and Keeper are *ex-officio* members of all Committees.

NATURALISTS' SECTION:

President : W. G. BIRCH.

Vice-Presidents :

J. S. GAYNER, G. MACHIN, H. SOWDEN, V. G. F. ZIMMERMANN.

Secretary : G. HOWARD.

REPORT OF THE COUNCIL
OF THE
YORKSHIRE PHILOSOPHICAL SOCIETY,
FEBRUARY 13TH, 1922.

IN presenting the Annual Report for 1921, the Council are pleased to announce a successful year's working.

The principal event in the history of the Society for the past year has been the appointment of Dr. Walter E. Collinge, M.Sc., F.L.S., M.B.O.U., to the post of Keeper of the Museum, which had been kept open for two years in the hope that Mr. Oxley Grabham would again be able to resume his duties. The appointment was made, after interviewing many candidates, in February 1921, and Dr. Collinge entered upon his duties in March. He came to us from the University Museum, St. Andrews, with a wide reputation for scientific work and Museum organization and administration. Dr. Collinge was formerly at Birmingham University, and later Director of the Museum at Berkhamstead. He is an Honorary Fellow of the American Ornithologists' Union, a member of the Wild Birds' Advisory Committee for Scotland, and a Darwin Gold Medallist, and author of numerous scientific works and memoirs.

Immediately upon his appointment he inaugurated a new Committee — the Museum Committee — consisting of the various Honorary Curators, with a view of bringing the several branches into closer touch, and excellent work has been done.

In the Society's Museum many important changes have been made (*see Committee's Report p. 17.*). An attendant has been stationed in the Vestibule to answer inquiries and assist in the clerical work.

Your Council would like to draw attention to the very delightful collections in the Ethnological Room. Here Dr. Collinge has brought together a wealth of material, with full descriptive labels, which has attracted thousands of visitors and earned the highest commendations.

The Vestibule has been re-decorated and a new floor put down, and the Architectural Museum extended. Under the able and enthusiastic direction of Mr. W. Harvey Brook, two new rooms have been added to this section of the Museum, and the whole department lighted by electricity; a catalogue is in course of preparation. It is now possible for members and visitors to inspect the contents at any time of the day.

Early in the year your Council approved of a scheme for the celebration of the Society's Centenary drawn up by the Keeper, Dr. Collinge, later a Centenary Executive Committee was appointed, and already has commenced to make arrangements. Full particulars will be sent to all members at no distant date.

Your Council have approved of a scheme whereby the whole of the clerical and financial work of the Society will be carried out at the Museum, the Council Room is being used as an office, where all the ordinary papers and books of the Society will be kept, wages and accounts paid, and subscriptions, rents, &c., received. In so doing your Council are of opinion that this will lead to greater efficiency in the management of the Society's affairs, and at the same time prove an economical departure.

They desire to place on record their high appreciation of the services rendered by Mr. Frank Guy, the Assistant Treasurer, and his brother Mr. Walter Guy, who have in the past so assiduously and efficiently watched over the Society's interests.

As pointed out in last year's report, Mr. W. Watson, the Sub-Curator, completed 50 years' service with our Society this month and your Council propose to mark the occasion in a fit and proper manner.

The following is a full list of the Lectures delivered in the Tempest Anderson Hall during the past year.

The Committee's selection has met with warm approval, and the Hall has been filled on most evenings to its fullest seating capacity.

January 6th.—“Cape to Cairo Railway.” By W. A. Elliott.

January 20th.—“York Minster Life in the 15th Century.” By the Rev. A. Raine.

February 3rd.—“Poland: its Past and Future.” By Professor Wilden Hart, F.R.G.S.

February 17th.—“The Planets and their Relations,” By Father Cortie, F.R.A.S.

March 3rd.—“The Romance of the Railways.” By Miss G. Bacon.

March 17th.—“The Land of the Humming Bird.” By Col. Benson, F.R.G.S.

October 6th.—“Wild Life in the Tree Tops.” By Capt. C.W. R. Knight, M.C.

October 20th.—“Worry, the Disease of the Age.” By Dr. C. W. Saleeby, F.R.S.E.

November 3rd.—“The Romance of Wireless Telegraphy.” By T. F. Finucane.

November 17th.—“Through some Tuscan Towns to Assisi.” By the Rev. Hugh C. Wallace.

December 1st.—“The Amazon Jungle.” By G. M. Dyott, F.R.G.S.

December 15th.—“Folk Songs: their History and Characteristics.” By Major J. T. Bavin.

Owing to numerous special expenses, such for instance as the new boiler, decorations, structural alterations and extensions, as well as an increase in salaries and wages, the financial statement shows a deficiency on the year's working. At the same time the increase in the Society's income shows a welcome advance, this and the non-reoccurrence of many items in this year's expenses should result in wiping out this deficit early in the coming year.

The Society has lost by death and resignation 24 Members, 5 Associates, and 12 Lady Subscribers, whilst 106 new Members have joined the Society. The total number of Members now stands at 630.

The Council recommend that Messrs. W. Bellerby, G. Benson, Dr. E. M. Smith, and Mr. J. Triffitt, be new members of the Council in the place of those retiring by rotation.

FIELD NATURALISTS' SECTION.—The Section continues in a flourishing condition. The year commenced with a membership of 110. One member has been lost by death and another by resignation. With seven new members elected during the year, the present membership stands at 115.

Thirteen lectures and papers have been given during the combined winter and autumn session, all of which were well attended. Two evenings have been devoted to the exhibition of specimens, and both proved a great success. In spite of the many difficulties attendant on the arrangement of excursions, seven have taken place, most of which were well attended.

May 11th.—Messrs. Backhouse's Nurseries, Acomb.

May 21st.—Strensall Common and Sandburn Common.

June 8th.—The Foss Bank from Yearsley Bridge to New Earswick.

June 29th.—Dunnington Common.

July 13th.—Askham Bog.

July 27th.—Hob Moor.

August 27th.—Poppleton (to investigate the culture of "Poppy Heads," *Papaverus somniferus*).

The August Bank Holiday week-end was spent with the Y.N.U. at Tilmire, Askham Bog, and Skipwith Common.

During the spring, 15 nesting-boxes were fixed in the Bird Sanctuary, most of which have been occupied, and several families reared; later 12 more boxes were fixed.

NEW MEMBERS, ETC., ELECTED IN 1921.

Abbey, Robert Wm., 32 Marygate
Allen, Arthur W., 9 Heworth Green
Ashby, Edgar, Bishopthorpe
Baker, Edgar, 4 Queen Anne's Road
Barton, Percy, 9 Bootham Terrace
Becks-Green, H. E., The Residence
Boddy, Frank, 41 North Parade, Bootham
Boddy, T. H., 4 Fountayne Street
Boddy, Wm., South Villa, Fulford Road
Boyes, W., Ouse Bridge
Brockbank, J. L., St. Mary's Lodge
Broughton, H. T., 17 Feversham Terrace
Clark, T. W., 52 Haxby Road
Cooper, C. A., "Danesmead," Fulford
Drinkall, J. W., 21 Queen Anne's Road
Dunn, D. D., 16 Parliament Street
Dyer, F., 48 Chestnut Avenue, Heworth
Elliker, J. T., 26 Sycamore Terrace, Bootham
Evans, Mrs. B., 3 Sycamore Terrace, Bootham
Featherstone, C. R., Clifton Rise, Clifton
Fletcher, Mrs., "Norton Holme," Burton Lane
Frith, J. W., 91 Lawrence Street
Graves, Thos., 2 Lendal
Gretton, Austin, Feasegate
Gibbs, Albert, Gowland Court
Hare, Frank, 30 Queen Anne's Road
Hewitt, A. E., St. George's Place
Hewitt, W., 3 St. Nicholas Terrace
Hetherton, John, (junior), 19 Sycamore Place, Bootham
Hill, J. R., Walnut Viila, Heworth
Hill, R., 4 St. Leonard's
Horler, Frank, 26 Grosvenor Terrace
Jarvis, Rev. A. C. E., C.M.G. (A.C.G. Northern Command),
 St. Martin's Vicarage, Coney Street
King, Col. J. C. R., 34 Grosvenor Terrace
Kleiser, C. J., 30 Portland Street, Gillygate
Lees, J. M., 7 Markham Crescent
Lister, A. C., Castlegate
Longfield, T. W., 5 North Parade, Bootham
Lyth, J. C., M.B., B.S., The Glen, Heworth
Lywood, Col. E. G., 2 Clifton
Mackinder, W., 70 Marygate
Maughan, Lieut.-Col. F. G., 116 The Mount
Maxwell, Mrs., 17 Park Grove
McCowen, Mrs. E., 4 St. James' Terrace, Clifton
Myers, Mrs. H. C., 104 Goodramgate
Oldfield, Archie, 6 North Parade, Bootham
Oman, Geo. F. W., 16 Bootham Crescent
Page, Harold, 107 High Petergate

Pearson, A., 74 Micklegate
 Pedley, John, 26 Goodramgate
 Pfluger, Chas., 32 Queen Anne's Road
 Platts, D. J., Gillygate
 Potter, Thomas, 22 St. John Street
 Rawling, Cecil, "Claremont," Marygate
 Riley, Mrs., 14 Priory Street
 Rooke, A. S., Temperance Hotel, Lendal
 Sadler, B., 1 Church Street
 Sanderson, F., 28 St. Paul's Square
 Saunders, Chas. W., 14 Rosslyn Street
 Saxby, Chas., 34 Queen Anne's Road
 Slater, J. H., 24 North Parade, Bootham
 Smithson, W. O., 27 Avenue Terrace
 Smithyes, Geo., 5 Claremont Terrace
 Story, Edwin, Micklegate Bar
 Stuart, Fred, 1 Bootham Crescent
 Sturdy, Mrs. M. O., 10 Spurriergate
 Thacker, Mrs., c/o —. Casson, Esq., Barclay's Bank
 Thackeray, Miss E. A., 106 Bishopthorpe Road
 Thorpe, Mrs. H. S., 9 Grosvenor Terrace
 Thorpe, Hugh, "Heseldene," East Parade, Heworth
 Volans, Mrs., 4 Duncombe Place
 Waite, Geo. E., 5 Park Grove
 Welham, A. G., 37 East Parade, Heworth
 Wells, F. J., "Ingsleigh," St. Clement's Grove
 Wilkinson, S., 32 St. Mary's.

NEW LADY SUBSCRIBERS.

Argles, Mrs., The Old Residence, Minster Yard
 Blanchet, Miss, 25 Queen Anne's Road
 Bellerby, Mrs. M., 26 Lord Mayor's Walk
 Cusworth, Miss E., M.Sc., Queen Anne Secondary School.
 Dobson, Miss Lucy, "Hillside," Acomb Green
 Faulkner, Miss J., New Earswick
 Fitzpatrick, Miss F. L., The Dispensary
 Gash, Mrs. E. M., 25 St. John Street
 Holiday, Miss O. A., King's Manor House
 Hume-Gore, Mrs., 116 The Mount
 Hart, Miss M., 11 Bootham Crescent
 Jones, Miss M. Ethel, 20 Blake Street
 Morley, Mrs., 3 Earlsborough Terrace
 Midgley, Miss M., Holt Cottage, Burton Stone Lane
 Noyes, Miss Amy, 11 St. Mary's
 Oxtoby, Miss M., 45 Grosvenor Terrace
 Petty, Miss, 16 Monkgate
 Pawson, Mrs., "Belleville," Howard Street
 Reid, Mrs. M. M., 10 Priory Street
 Russell, Miss A., 103 The Mount
 Warneford, Miss, 29 Marygate
 Wardingley, Mrs., 34 Bishopthorpe Road
 Willoughby, Hon. Mrs. E. A., Howsham Hall, Malton

NEW ASSOCIATES.

Busby, E., Skeldergate
 Fletcher, Rev. R., The Training College
 Hawthorne, E. H., 4 Mount Terrace
 Jones, P. B., Diocesan Training College
 Kingan, Thos., 4 Garfield Terrace
 Leonard, T. Goulton, Museum Street
 Mills, O. R., 79 Skeldergate
 Young, Rev. F. C., 35 East Mount Road

TEMPORARY MEMBER.

Beck, Colonel, 116 The Mount

DEATHS.

MEMBERS.

Fox, Mrs., Bootham Terrace
 Rowntree, Mrs. J. S., Mount Villas

LADY SUBSCRIBER.

Dennis, Mrs., 105 The Mount

ASSOCIATE.

McMenamin, J. N., 6 Marlborough Villas

RESIGNATIONS.

Members, 22. Lady Subscribers, 11. Associates, 4.



REPORT OF THE GARDEN COMMITTEE.

Considerable improvements have been carried out in the Gardens, and others are under the careful consideration of your Committee for the further improvement and beautifying of the grounds.

Early in the year the whole of the walks were inspected, and re-asphalted where it was found necessary. The glass houses have been re-painted, the gutters cleaned out, and the yard put in order.

Your Committee have given considerable time and attention to the Botanical Garden, and we have to thank Messrs. H. J. Wilkinson and S. Walker for the great improvement effected. In April last this garden was placed under the charge of Mr. G. Webster who entered upon his task with enthusiasm, and has done admirable work. The garden has been visited by large numbers of people, as many as five hundred a week passing through, and quite a large number of these came for the purpose of study. The further extension and upkeep of this useful work is under the Committee's consideration.

During the whole of the Summer a display of wild flowers and fruits was made in the Main Hall of the Museum, and very highly appreciated by members and visitors.

THE TREASURER'S ACCOUNT IN CONNECTION WITH THE FUND FOUNDED BY THE LATE
WM. REED, ESQ., FOR SPECIFIC PURPOSES.

Dr.	Cr.
	INCOME.
Interest on York Corporation 3% Redeemable Stock, less tax	£ s. d. 12 12 0
Bank and other Interest	£ s. d. 3 13 0
	£16 5 0
	EXPENDITURE.
	£ s. d. Nil.
	Excess of Income over Expenditure ...
	£16 5 0
	BALANCE SHEET.
Amount of Fund on 31st December, 1921	£ s. d. 743 15 9
Stock ...	Amount invested in York Corporation 3% Redeemable Stock
and Midland Bank Ltd.	Amount placed on Deposit with the London Joint City Bank
Balance ...	£ s. d. 93 15 9
	£743 15 9

Audited and found correct,

W. W. BUTTERFLY.

2nd February, 1922.

E. GRAY, Hon. Treasurer.

THE YORKSHIRE MUSEUM,
YORK.

Report of the Museum Committee

FOR THE YEAR 1921.

PRINTED BY ORDER OF THE COUNCIL.

1922.

TRUSTEES
OF
THE YORKSHIRE MUSEUM
APPOINTED BY ROYAL GRANT.

GEORGE A. AUDEN, M.D.

THE RIGHT HON. LORD DERAMORE.

CHAS. E. ELMHIRST.

SIR GEORGE GIBB, LL.B.

EDWIN GRAY, M.A., LL.M., J.P.

THE YORKSHIRE MUSEUM.

Keeper:

WALTER E. COLLINGE, D.Sc., M.Sc., F.L.S., M.B.O.U.

Honorary Curators:

ARCHÆOLOGY	- - - - -	{ W. HARVEY BROOK. Rev. Canon J. SOLLOWAY, D.D. G. BENSON, A.R.I.B.A. W. A. EVELYN, M.A., M.D. (Cantab.)
GEOLOGY & MINERALOGY	- - - - -	{ Rev. W. JOHNSON, B.A., B.Sc. H. M. PLATNAUER, B.Sc.
BOTANY	- - - - -	H. J. WILKINSON.
ZOOLOGY	- - - - -	{ W. H. ST. QUINTIN, F.Z.S., M.B.O.U. S. WALKER, F.E.S. J. BACKHOUSE, F.L.S., F.Z.S.
ASTRONOMY AND METEOROLOGY	- - - - -	{ J. SCOTT. Rev. W. JOHNSON, B.A., B.Sc.
NUMISMATICS	- - - - -	G. BENSON, A.R.I.B.A.
CERAMICS	- - - - -	A. HURST, A.K.C.
LIBRARY	- - - - -	H. M. PLATNAUER, B.Sc.

Sub-Curator: W. WATSON.

Assistant: MISS E. HOLMES.

Chief Clerk: ARTHUR COLLEY.

Museum Attendants:

T. H. SPETCH, W. BROWN, and MISS BINGE.

THE YORKSHIRE MUSEUM.

Report of the Museum Committee

FOR THE YEAR 1921.

IN presenting its Report for the Year 1921, the Committee have to report a year of active work and re-organization.

The new Keeper, Dr. Collinge, entered upon his duties in March, and the present Committee was immediately formed.

Your Committee desire to call attention to the pressing need for additional buildings. Every possible space has been utilised for exhibition and storage. The provision of a separate room for Cabinet Collections is very desirable, and much greater space is required for the exhibition and storage of the Roman antiquities, the Ethnological, and the Zoological collections, as also a much larger Library.

The donations to the Museum have been numerous and valuable (*see p. 33*).

The Seaton Harland collection is a welcome addition to the already rich Yorkshire collection of stone and bronze implements.

The Keeper attended the Edinburgh Meeting of the British Association as the Society's delegate. The two meetings of the Conference of Delegates of Corresponding Societies were of exceptional interest, and largely attended.

The Backhouse collection of remains from the Teesdale Cave have been removed from the Ethnological room to the Geological department, and the Boynton collection of Flints and Stone and Bronze Implements has been exhibited in the Ethnological room.

The re-organization, classification, and superintendence of the cleaning of the collections in the Ethnological room have

claimed the major portion of the Keeper's time. In addition a type collection of Invertebrates has been arranged in the Gallery of the Bird room, and a commencement made with the re-classification of the Mammals and Birds.

During July, August, and September, a series of Special Exhibits were arranged for each Saturday and the week following. These attracted many visitors, on Saturday afternoons alone upwards of 5,000 people entered the Museum.

The Yorkshire Naturalists' Union met at York on July 30th, 31st, and August 1st, and the Tempest Anderson Hall, Museum, and Gardens, were thrown open to all the members. On November 16th, the Yorkshire Geological Society held its Annual Meeting at the Museum, and the members of many other kindred Societies have paid visits. The Yorkshire Architectural and York Archaeological Society has continued to hold its meetings and house its Library in the Museum.

Turning to the different sections of the Museum—

ARCHÆOLOGY.—It has become increasingly evident to the Honorary Curator, under whose personal supervision the antiquities formerly in the undercroft of the Hospitium were removed and set up in the great room beneath the Tempest Anderson Hall in the basement of the Museum (now known as the Architectural Museum), that if the collection is to make progress, more exhibition space must somehow be obtained, as well as a work room for the Curator, and a place where fragments of sculpture and other details can be assembled and cleaned previous to being placed on exhibition. Some months ago a scheme was submitted to the Council to take in a small part of the basement of the old Museum for these purposes, and this was approved, and, in part, carried out. At the south-east corner of the Architectural Museum a small hall 24 ft. 6 in. in length by 16 ft. 6 in. wide is now available for an assembling place for fragments, and if occasion requires, an exhibiting space; adjoining which is the Curator's work room, with gas and water laid on, a sink and lead covered bench for working on, washing objects, &c., this smaller room measures 18 ft. 3½ in. by 13 ft. 6½ in. Both these rooms have been provided with electric light.

The room at the south-west end of the Architectural Museum adjoining the vestibule, now occupied as an assembling room and store, is intended to be an exhibition room to be called "Room A." This room is to be cleaned, and the objects of Saxon and pre-Norman work, such as the Hutton Cranswick font and the Saxon Cross heads and shafts now in the Lower Hall of the Hospitium, also the plinth and buttress of the S.W. angle of the Cloister removed from this very site in 1829, to make way for the foundation walls of the Museum then being built, is to be re-erected within a foot or two of its original position; the Saxon fragments and the font will be brought from the Hospitium Lower Hall and disposed around this new exhibition room, which will then form the nucleus of a collection of objects of this period. The Honorary Curator wishes to point out that this is no new scheme, but part of that inaugurated in 1912-13 abandoned for want of room and lack of funds. The Hospitium will thus become the home of the antiquities of the Roman period almost entirely—the Pagan as against the Christian era.

In the early part of the coming year, A.D. 1922, it is hoped to obtain the necessary financial grant from the Society's funds to carry out the scheme here outlined.

The scheme of electric lighting has been successfully carried out so that now it is possible for the objects to be seen to better advantage.

During the summer months a collection of photographs and prints dealing with the iconography and other matters in connection with St. Mary's Abbey and local antiquities was exhibited in the two large wall cases placed in the Architectural Museum. Small fragments of carvings and statuettes from the John Brown, Hargrove, and other small collections were placed in these cases. One or two notices to draw the attention of visitors to our coming Centenary were also posted in this case.

In order to facilitate the cleaning of the windows at the west end of the room it is proposed to place footplates on iron brackets under the four windows so that the cleaners may not damage objects below the windows by standing upon them.

Our best thanks are due to J. P. Gill, Esq., of Marygate, for the gift of a number of interesting stones from his garden.

Part of a cresset stone of four cups, two are perfect, from a house at the south end of the Shambles, also the following objects: small carved oak panel early renaissance motif *circa* A.D. 1520-30, similar to work at Swine Church, Yorkshire, bought in York; fragments of oak panel, dripstone terminal of rich perpendicular work, a rose well carved with bold mouldings, found during the widening of Queen Street, on the site of the Blossom Street Post Office; perpendicular cap, marble, found in a house in Trinity Lane about 1909, bought and presented by the Honorary Curator. One stone of a late Norman Arch found at Clementhorpe, presented by Frank Terry, Esq.

New Catalogue of the "A" Museum.—On June 9th a start was made with the numbering of the objects in the Architectural Museum, and about 1,021 have had numbers affixed to them, this appears at first sight quite an easy undertaking. The careful, and as far as may be, proper description of the fragments is highly important, and so far as the mediæval antiquities in the possession of the Yorkshire Philosophical Society are concerned has never yet been even attempted.

The old catalogue of 1891 contains about forty vague references to certain objects, which not only do not correctly describe them, but owing to the numbers becoming detached it is difficult to understand to which objects they refer. The removal of the old collection from the Hospitium to the new building in 1912-13, most of it unnumbered and undescribed, the many additions up to the present time, as well as the new grouping in the Architectural Museum, has rendered the making of the catalogue a work necessitating much time, research, and patience, but as the Honorary Curator saw the removal of the collection from its old to its present abode, he hopes to carry the work through to a satisfactory conclusion.

The Hospitium.—For some years the dilapidations owing to time and neglect have caused increasing anxiety. The state of the leadwork of the windows noticed in previous reports has, in this past year, received attention; three whole windows,

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During the summer months a collection of photographs and prints dealing with the iconography and other matters in connection with St. Mary's Abbey and local antiquities was exhibited in the two large wall cases placed in the Architectural Museum. Small fragments of carvings and statuettes from the John Brown, Hargrove, and other small collections were placed in these cases. One or two notices to draw the attention of visitors to our coming Centenary were also posted in this case.

In order to facilitate the cleaning of the windows at the west end of the room it is proposed to place footplates on iron brackets under the four windows so that the cleaners may not damage objects below the windows by standing upon them.

Our best thanks are due to J. P. Gill, Esq., of Marygate, for the gift of a number of interesting stones from his garden.

Part of a cresset stone of four cups, two are perfect, from a house at the south end of the Shambles, also the following objects: small carved oak panel early renaissance motif *circa* A.D. 1520-30, similar to work at Swine Church, Yorkshire, bought in York; fragments of oak panel, dripstone terminal of rich perpendicular work, a rose well carved with bold mouldings, found during the widening of Queen Street, on the site of the Blossom Street Post Office; perpendicular cap, marble, found in a house in Trinity Lane about 1909, bought and presented by the Honorary Curator. One stone of a late Norman Arch found at Clementhorpe, presented by Frank Terry, Esq.

New Catalogue of the "A" Museum.—On June 9th a start was made with the numbering of the objects in the Architectural Museum, and about 1,021 have had numbers affixed to them, this appears at first sight quite an easy undertaking. The careful, and as far as may be, proper description of the fragments is highly important, and so far as the mediæval antiquities in the possession of the Yorkshire Philosophical Society are concerned has never yet been even attempted.

The old catalogue of 1891 contains about forty vague references to certain objects, which not only do not correctly describe them, but owing to the numbers becoming detached it is difficult to understand to which objects they refer. The removal of the old collection from the Hospitium to the new building in 1912-13, most of it unnumbered and undescribed, the many additions up to the present time, as well as the new grouping in the Architectural Museum, has rendered the making of the catalogue a work necessitating much time, research, and patience, but as the Honorary Curator saw the removal of the collection from its old to its present abode, he hopes to carry the work through to a satisfactory conclusion.

The Hospitium.—For some years the dilapidations owing to time and neglect have caused increasing anxiety. The state of the leadwork of the windows noticed in previous reports has, in this past year, received attention; three whole windows,

two in the north end of the Lower Hall and one on the west side fronting the river (that is six lights in all) have been taken out, and new leaded lights with the same sized quarries, but heavier weight of lead, have taken the place of the old windows. All the other windows both in the Lower and Upper Halls, are in a worn out condition and will have to be replaced as funds permit. The mullions of the windows require attention, and some will require renewal. It will be as well to point out here, that the greater part of the work of the two lighted windows of the lower room is more or less the work put in during the restoration of 1840 which has in its turn become decayed and requires new material. The small casements of the upper room with their trefoil headings are of the same date. The wooden gutters and fall pipes require renewal, and the stone plinth also requires attention.

The Hospitium requires a thorough overhauling if it is to continue to be the home and shrine of the invaluable and magnificent Roman collection, one of the finest in England.

ASTRONOMY AND METEOROLOGY.—During 1921 all the instruments in the Observatory have been in good repair. A large number of observations have been taken, both with the Transit instrument and the Telescope.

ZOOLOGY.—The whole of the Vertebrate collections, other than the British Birds, are being re-classified and re-labelled. A small but interesting invertebrate collection has been arranged in the Gallery of the Bird room, and has attracted considerable attention. The efforts of the staff are greatly handicapped owing to lack of space.

Ornithology. — There is nothing special to report in the Ornithological Department for the past year, but certain important alterations are in contemplation which it is hoped will be carried out at an early date. Broadly speaking, the Bird and Egg collections are in good order. Amongst the donations mention should be made of a specimen of the Sclavonian Grebe in summer plumage, obtained and presented by C. E. Elmhirst, Esq., and a series of stuffed birds presented by A. W. Linfoot, Esq., including an example of

Bulwer's Petrel, washed up at Scalby Mills, near Scarborough, in 1908.

Entomology.—During the summer months the exhibition of living larva, of several species of British Lepidoptera was held in the Central Hall, and attracted much attention and interest. Amongst the species were the Elephant Hawk (*Chariocampa elepenor*), Emperor Moth (*Saturnia carpini*), and Hop Dog (*Dasychira pudibunda*). It is intended to give further demonstrations during the ensuing year, on rather a larger scale, showing some of the rarer species, in the larva stage, as well as those very grotesque in form, and again others, which show striking protective resemblance to their food plants, or resting objects.

Conchology.—A cabinet collection of Land, Freshwater, and Marine Shells, has been commenced. Owing to the strong light in the galleries, most of the specimens on exhibition are becoming faded, it is very questionable whether these should be exhibited.

NUMISMATICS.—During the year there has been acquired for the Museum Mr. J. Backhouse's collection of counters known as "Black Money," consisting of above 68 pieces with a MS. Catalogue. Amongst the presentations there are a number of coins of varied character from the Harland bequest, and Mr. J. Hamilton has presented an Indian coin.

In a garrison city like York it is remarkable that the Museum does not possess a collection of Military Medals. The mentioning of this fact might lead to the formation of such a collection to which officers and others interested in war tokens might like to contribute.

It is hoped that the new Coin Cabinet will enable a reclassification to be made, and that it will be possible to include therein the valuable and interesting series of medals, &c.

CERAMICS.—The Ceramic specimens have been well maintained during the past year, and considerable progress has been made in labelling and the preliminary work for cataloguing the specimens. A catalogue of the Boynton collection of Yorkshire Pottery has been completed and is now in the hands of the printers.

LIBRARY.—Owing to the vacancy in the Keepership and the resignation of the Assistant Librarian, the Library has received but little attention during the past two years. During 1921, accommodation has been made for the display of the weekly, monthly, and quarterly publications, and the new additions, and many of the arrears in binding have been attended to. During the year 39 volumes have been added by purchase and 17 by presentation in addition to numerous unbound memoirs. The number of volumes borrowed was 161.

As in other departments, the need for much larger premises is very pressing in the case of the Library. The extremely valuable collection of books which the Society possess is worthy of more space and attention. This matter is receiving the careful consideration of the Committee, and it is hoped that some improvement may be effected, even if it be only of a temporary nature.

METEOROLOGY.—*Statistics of Station*: Longitude, $1^{\circ} 5'$ W.; Latitude, $53^{\circ} 57'$ N.; height above mean sea level, 56 feet.

The chief feature of the weather of 1921 was the abnormal shortage of rainfall. In some parts of the country grass practically disappeared, in others crops were almost too light to be gathered. The water supplies to the great industrial towns were much curtailed, and the cartage of water for flocks was a heavy burden on the wold farmers. The Thames Valley springs, which supply London, were so reduced as to give rise to great apprehension for the health of the people.

Temperature ranged in 1921 between 89° F. on the 10th of July, and 18° F. on the 11th of November; the range of temperature thus being 71° F. as against 53° F. for 1920. A mean pressure of 1017·0 millibars (1000 millibars = 29·531 mercury inches) at M.S.L., corrected for diurnal variations, has been recorded as against 1014·0 mbs. for 1920. January was lowest with 1008 mbs., August next with 1009·9 mbs. February was highest with 1023·8 mbs., and June next with 1020·2 mbs. The extreme range was 58 mbs. (app.) as against 71·6 mbs. in 1920, and 68·7 mbs. in 1919. The highest reading of the barometer 30·80 in. (1043 mbs.) was taken on Feb.

26th, at 9 p.m., and the lowest 29.07 in. (984.4 mbs.) on Jan. 12th, at 9 p.m.

Snow or Rain fell to the amount of 16.01 inches or 406 mm., being 10.9 inches or 257 mm. below the rainfall for 1920. The heavy fall of the year was in the month of August, being 3.65 inches (93 mm.) or nearly one-fourth of the fall for the whole year. The heaviest fall of rain occurred on August 28th, when 20 mms. fell. The cumulative totals for the years since 1820 are, for the heaviest months, August 5448 mms., October 5375 mms., and July 5014 mm. The holiday month was thus unfavourable.

Observations of winds show that during 1921 we had "strong" winds on 15 days as against 38 days for 1920, and "Calm" on 6 days as against 16 days for 1920. The chief winds have been observed as S. (257), N. (202), W. (166), S.W. (134), N.W. (110), N.E. (92), S.E. (70), and E. (58). We have had 56 days of "clear" sky, and 131 of "overcast," as compared with 37 days of "clear" and 139 of "overcast" sky for 1920.

There have been 5 thunderstorms and 8 fogs as compared with 5 thunderstorms and 15 fogs for 1920. Snow fell on 6 days as against 10 days in 1920, and 16 days in 1919. There were hailstorms on 2 days only.

Bright Sunshine was recorded for 1449 hours in 1921 as against 1081 hours for 1920, an increase of 368 hours for the year. The daily mean was 3.96 hours, and the percentage of the possible sunshine was 32. As last year's percentage was 24, this means an increase of one-third. The question has been raised, "Can we have too much sunshine?"

It is urgently requested that any discovery of Archæological interest in the neighbourhood may be brought to the notice of either the Honorary Curators, or the Keeper of the Museum as early as possible.

The Keeper of the Musem will be pleased to give any information in his power, and may be seen daily, Museum engagements permitting.

CLIMATOLOGICAL STATION, YORK.—THE MUSEUM.

Heights above Ground :—Barometer, 3 feet ; Thermometers, 4 feet ; Rain-gauge, 1 foot.

1921.	Air Temperature in Degrees Fahrenheit.												Weather, No. of Days of.												Bright Sunshine.			
	Means of				Absolute Extremes.				Rainfall.				Wind.				Cloud.				Gale force 8 or more.				Per Cent.			
Max.	Min.	Max.	Min.	Max.	Min.	L.	Max.	Day.	H.	Min.	Day.	Total.	Max.	Total.	Max.	Fall.	Snow.	Snow.	Hail.	Thunder.	Cloud.	Mean.	Daily	Total.	hr.	hr.	%	
o	o	o	o	o	o	o	o	o	o	o	o	mm.	mm.	mm.	ins.	ins.	ins.	ins.	o F	o F	o F	° F	At 4 ft.	At 1 ft.	Day.	18	11	9
Jan.	48.6	39.7	44.2	58	9	28	15	37	15	50	29	42.5	44.3	39	8	1.55	0.32	11	10	2	0	0	0	0.68	21	9		
Feb.	46.0	35.6	40.8	57	16	23	4	36	3	47	16	41.0	43.5	3	1	0.13	0.05	24	4	2	0	0	0	0	1.82	51	19	
Mar.	51.5	39.0	45.3	63	24	29	7	43	7	48	24	43.4	43.9	21	4	0.82	0.16	16	18	8	0	0	0	0	2.84	88	24	
April	54.3	38.5	46.4	68	1	27	16	41	15	46	6	46.5	45.8	33	9	1.28	0.34	18	14	13	4	0	0	0	0	5.77	173	41
May	62.6	43.5	53.1	76	25	30	5	46	4	52	12	53.1	49.8	38	9	1.51	0.36	2	13	10	0	0	1	0	0	6.65	206	42
June	67.6	48.5	58.1	86	25	39	28	56	5	64	12	58	54.3	8	3	0.30	0.10	4	8	4	0	0	0	0	0	6.93	208	41
July	74.0	54.0	64.0	89	10	37	5	56	4	64	9	62.2	57.7	23	6	0.92	0.23	23	12	7	0	0	0	1	0	6.06	188	37
Aug.	66.9	53.0	60.0	80	1	46	30, 31	58	12	64	1	61.0	58.8	93	20	3.65	0.77	28	20	14	0	0	0	1	0	4.12	128	28
Sept.	66.4	49.7	58.1	79	8	39	25	55	13	60	23	58.2	57.9	18	7	0.71	0.27	13	8	5	0	0	0	1	0	5.43	163	43
Oct.	62.7	48.1	55.4	75	6	35	24	46	23	59	8	55.0	56.0	42	12	1.67	0.48	2	12	7	0	0	0	1	0	4.30	133	41
Nov.	44.6	35.0	39.8	59	1	18	11	38	9	45	4	44.4	50.4	42	25	1.65	0.98	5	14	7	0	0	0	4	0	1.79	54	21
Dec.	49.0	39.0	44.0	55	6, 9,	24	4	34	4	49	7, 8,	42.9	46.1	46	17	1.82	0.66	27	19	12	0	0	2	0	0	1.17	36	16
Totals																										16.01	406	32
Means or Extremes	57.9	43.6	50.8																							50.7	50.7	32

NORMAL CLIMATOLOGICAL STATION, YORK.—THE MUSEUM.

Latitude $53^{\circ} 57' N.$, Longitude $1^{\circ} 5' W.$ Gravity Correction + 0.8 mb. Height above Mean Sea Level 56 ft.

1921.	Mean Pressure and Lat. 45° corrected to 32° F.			Temperature.						Humidity.						Wind, No. of Observations referred to a total of 93, 90, 87 or 84 for the month.																	
	Station Level.	M.S.L. and corrected for diurnal variation.	Mean.	9 a.m. 9 p.m.			Depression of Wet Bulb.			Vapour Pressure.			Percentage.			Clear Sky.			Cloudy Calm.			N.E.			S.E.			S.W.			W.		
				mb.	ins.	°	°	°	°	mb.	mb.	%	mb.	mb.	%	2	14	0	8	0	1	3	0	6	38	18	18	9					
Jan.	1008.0	1009.7	29.719	44.1	43.8	2.0	2.1	8.3	8.1	84	84	7.9	6.2	2	14	0	8	0	1	3	0	6	38	18	18	9							
Feb.	1023.8	1025.6	30.226	39.4	40.0	1.8	1.8	7.0	7.1	86	86	7.3	6.2	4	13	0	0	0	1	17	11	12	6	7	7	12	12	12					
Mar.	1011.5	1013.1	29.848	45.1	44.3	2.8	2.5	8.1	8.0	79	81	7.1	5.8	2	11	0	0	0	0	0	8	0	0	7	41	16	16	15	6				
April	1018.7	1020.4	30.030	46.9	45.7	3.6	2.7	8.1	8.3	76	81	5.0	5.1	8	6	0	0	0	0	0	33	17	4	1	4	3	14	14	14				
May	1011.6	1013.3	29.971	54.7	52.6	5.4	4.0	9.8	10.0	68	75	5.2	5.5	6	6	0	0	0	0	0	17	7	8	6	21	15	15	12	7				
June	1020.2	1021.9	30.128	59.4	55.9	5.8	4.2	11.5	11.4	67	74	5.5	4.8	7	9	0	0	0	0	0	32	12	6	3	7	7	7	6	17				
July	1015.2	1016.9	29.918	64.3	63.5	5.8	5.6	14.0	13.7	6.9	70	6.3	6.1	4	12	0	0	0	0	0	18	7	15	7	14	12	12	8	8				
Aug.	1009.9	1011.6	29.925	59.0	58.8	3.3	2.8	13.5	13.9	80	83	7.4	7.5	2	16	0	0	0	1	27	8	0	0	4	23	7	17	6	17				
Sept.	1017.4	1019.0	29.997	56.8	57.3	3.7	3.6	12.1	12.4	77	78	5.3	7.0	6	11	0	0	2	13	6	9	3	20	12	18	7	7	7	17				
Oct.	1018.1	1019.8	30.027	53.4	54.1	2.3	2.3	11.7	12.0	85	84	4.9	4.8	8	9	0	2	0	11	4	1	7	30	14	15	15	11	11					
Nov.	1016.4	1018.1	29.981	38.1	38.8	1.4	1.5	6.9	7.0	88	88	7.1	5.7	4	12	0	0	0	0	0	18	10	1	17	29	8	1	6	6				
Dec.	1012.3	1014.1	29.850	43.1	43.8	2.0	2.1	8.0	8.1	84	84	6.3	6.6	3	12	0	0	5	2	7	7	2	3	24	15	26	7	7					
Totals																																	
Means	1015.3	1017.0	29.968	50.4	49.9	3.3	2.8	9.9	10.0	79	81	6.3	5.9																				

Pressure is expressed in millibars (1000 millibars = 29.531 mercury inches), also in mercury inches.

RIVER HEIGHT RECORDS REGISTERED BY THE AUTOMATIC RECORDER
AT THE GUILDHALL, YORK, 1921.

JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.
12 a.m.	above 6 ft. in.	1 a.m.	above 2 ft. in.	noon	above 0 ft. in.	1 a.m.	above 2 ft. in.	noon	above 0 ft. in.	12 p.m.	above 0 ft. in.
1 4 p.m.	above 6	1 a.m.	above 2	10	0	7	,"	noon	above 0	12 p.m.	above 0
2 12 p.m.	6	8	,"	10	,"	0	6	6	0	noon	6
3 noon	8	4	,"	5	0	6	,"	7	0	4	6
4 1 a.m.	7	9	,"	0	12 p.m.	2	3	,"	5	5	6
5 4 p.m.	6	0	,"	8	7 a.m.	2	5	,"	5	0	5
6 1 a.m.	5	8	,"	1	7 a.m.	1	4	,"	5	0	5
7 6 p.m.	3	3	,"	1	1 a.m.	1	0	,"	5	0	5
8 1 a.m.	2	11	,"	5	6 p.m.	0	11	,"	6	0	5
9 12 p.m.	3	9	,"	1	7 a.m.	0	10	,"	5	0	5
10	7	8	,"	3	1 a.m.	0	9	,"	5	0	5
11 9 p.m.	9	3	1 a.m.	3	6 p.m.	0	8	,"	6	0	4
12 1 a.m.	9	2	noon	1	7 a.m.	0	7	,"	7	0	4
13 12 p.m.	8	4	2	2	1 a.m.	0	6	,"	7	0	4
14 6 a.m.	8	5	2	2	6 p.m.	0	5	,"	7	0	4
15 1 a.m.	6	2	2	2	7 a.m.	0	4	,"	7	0	4
16	3	5	2	2	8 a.m.	0	3	,"	7	0	4
17 12 p.m.	7	6	1 a.m.	3	3 p.m.	0	2	,"	7	0	4
18	0	0	1 a.m.	1	4 p.m.	0	1	,"	7	0	4
19 noon	8	5	noon	0	5 p.m.	0	0	,"	7	0	4
20 1 a.m.	9	4	1 a.m.	0	6 p.m.	0	0	,"	7	0	4
21	4	4	10	11	1 a.m.	1	1	6	0	3	3
22 12 p.m.	3	4	0	10	2 a.m.	1	0	7	0	3	3
23 6 a.m.	4	4	9	9	3 a.m.	1	0	0	5	0	3
24 1 a.m.	3	4	9	9	4 a.m.	0	0	5	0	0	3
25 12 p.m.	4	5	6	6	5 a.m.	1	1	4	5	0	2
26	5	8	8	8	6 a.m.	1	2	5	5	0	2
27 1 a.m.	5	8	9	9	7 a.m.	0	3	5	6	0	2
28	2	5	6	6	8 a.m.	0	3	5	6	0	2
29 noon	2	8	5	5	9 a.m.	0	3	5	6	0	2
30 5 p.m.	3	6	0	0	10 a.m.	4	4	5	5	0	2
31	5	6	0	0	11 p.m.	12	12 p.m.	12	12 p.m.	12	12 p.m.

RIVER HEIGHT RECORDS.

Date	JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		
	Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.	Time.	Above or below S.L.	
1	noon	above 0	2	noon	above 0	4	1 a.m.	above 2	8	noon	above 1	6	
2	"	.0	3	12 p.m.	1	3	"	2	4	"	5	0	
3	"	0	3	6 a.m.	1	9	"	2	1	"	7	0	
4	"	0	3	1 a.m.	1	6	"	2	0	"	4	0	
5	"	0	3	7 p.m.	1	2	"	1	10	12 p.m.	0	11	
6	"	0	3	5 a.m.	2	6	"	1	8	12 p.m.	0	11	
7	"	0	3	7 p.m.	2	8	"	1	6	noon	0	8	
8	"	0	3	1 a.m.	2	3	"	1	6	noon	0	8	
9	"	0	2	"	1	9	"	1	3	9	"	8	
10	"	0	2	"	1	2	"	1	2	3	9	8	
11	1 a.m.	0	1	noon	1	2	"	1	2	4	12 p.m.	3	
12	noon	0	1	"	0	11	"	0	6	noon	2	8	
13	"	0	1	"	1	0	"	0	6	noon	2	8	
14	"	0	1	S.L.	0	1	0	12 p.m.	1	7	noon	2	1
15	"	0	1	S.L.	1	0	1	11 a.m.	4	7	noon	2	0
16	"	0	1	S.L.	1	0	1	1 a.m.	0	7	noon	2	0
17	"	0	1	S.L.	1	0	"	0	6	noon	1	8	
18	"	0	1	S.L.	0	11	"	0	6	noon	1	7	
19	"	0	1	S.L.	0	10	"	1	6	noon	1	7	
20	"	0	1	above 0	1	0	"	1	9	noon	0	6	
21	"	0	2	S.L.	0	9	"	1	6	noon	0	6	
22	"	0	2	S.L.	0	8	"	1	3	5 p.m.	3	9	
23	"	0	2	above 0	0	6	"	1	0	noon	0	2	
24	"	0	2	S.L.	0	7	"	0	11	1 a.m.	3	2	
25	"	0	2	S.L.	0	6	"	0	6	noon	2	8	
26	"	0	2	S.L.	0	6	"	0	6	noon	1	5	
27	"	0	2	S.L.	0	6	"	0	9	noon	1	3	
28	"	0	3	S.L.	0	6	"	0	9	noon	2	7	
29	"	0	3	S.L.	0	6	"	0	8	noon	1	2	
30	"	0	3	6 p.m.	2	10	"	0	8	noon	1	9	
31	"	0	3	1 a.m.	2	10	"	1	1	10 p.m.	1	8	

YORK (MUSEUM) 1921.

BRIGHT SUNSHINE.

Barometer at Mean Sea Level

Month	Daily Mean.	Per-cent.	1921	1920	Highest.	Absolute.
	Hours.	%			ins.	ins.
Jan.	0.68	9	21		30.40	16th, 9 a.m.
Feb.	1.82	19	24		30.80	26th, 9 p.m.
Mar.	2.84	24	23		30.28	25th, 9 a.m.
Apr.	5.77	41	16		30.56	7th, 9 a.m. & 9 p.m.
May	6.65	42	35		30.36	23rd, 9 a.m.
June	6.93	41	37		30.50	2nd, 9 a.m.
July	6.06	37	21		30.30	4th, 9 p.m.
Aug.	4.12	28	22		30.22	19th, 9 a.m.
Sept.	5.43	43	25		30.48	27th, 9 a.m.
Oct.	4.30	41	30		30.53	14th, 9 p.m.
Nov.	1.79	21	11		30.56	10th, 9 a.m.
Dec.	1.17	16	10		30.38	13th, 9 p.m.
Year.	3.96	32	24		30.80	Feb. 26.
					29.07	Jan. 12.

Month.	Total Depth.	Greatest Fall in 24 hours.	Number of Days with .01 or more recorded
Jan.	1.80	.35	11 18
Feb.	.42	.12	21 1
Mar.	.87	.20	16 10
April	1.33	.40	18 10
May	1.57	.44	2 10
June	.34	.08	20 8
July	.895	.22	25 9
Aug.	3.98	.80	11 19
Sept.	.965	.38	15 6
Oct.	1.86	.47	2 12
Nov.	1.94	.98	5 16
Dec.	2.09	.15	18 19
Total	17.76		138

AT CHERRY HILL, YORK.

Rain Gauge : Dia. of funnel, 5 in.;
 Height Above Ground, 1 ft. 6 in.
 " Above Sea Level, about 50ft.

RAINFALL IN 1921

ADDITIONS TO THE MUSEUM
DURING 1921.

T. H. ANDERSON.—Specimens of Blue Asbestos, Dolomite, and Castleton Blue John Spar.

Miss P. AYSTON.—Abydos Artist's Palette in green slate.

J. BACKHOUSE.—Clutch of four Woodcock's Eggs; Old Wooden Spice Box; Iron Axe found at Knaresborough; two Pot Labels; piece of Fused Mining Refuse from Teesdale Moors.

A. BELL.—Pleistocene Worm Tubes (*Panthalis oerstedti*) from Isle of Man; seven specimens of Corals and Echinoderms from the Red Crag.

Alderman W. BIRCH.—Two Carved Stones and a Lead Rain-water Strap with Crest, from Castlegate.

LORD BOLTON.—Very fine, large, leaf-shaped Flint from India; Glass Linen Smoother.

W. HARVEY BROOK.—Part of Cressett Stone; small Carved Oak Panel, circa A.D. 1520-30; fragment of Oak Panel; Dripstone terminal; Marble Perpendicular Cap.

WM. BROWN.—York Constable's Stave.

H. J. BOSWORTH.—Specimens of Mica.

J. E. CLARK.—Mountain Limestone Boulder from railway excavation, York, 1875-76.

Dr. ELIOT CURWEN.—Roman Ink Pot.

Misses DICKENSON.—Old York Psalm and Hymn Book.

Lt.-Col. DOBSON.—Bamboos, etc., for Gardens.

CHAS. E. ELMHIRST.—Egg of Black-throated Diver; specimen of Sclavonian Grebe in summer plumage, and Stuffed Pine Marten; Stoat in winter dress; eight-drawer Mahogany Cabinet.

J. P. GILL.—Eighteen Carved Stones.

FRANK GREEN.—Old York Mace.

JAMES HAMILTON.—Silver-gilt reproduction of Indian coin.

The late H. SEATON HARLAND.—Collection of Flints, Stone and Bronze Implements, Coins, etc.

T. E. HOLLINGS.—Stoneware Bottle, Eccleshill Manor Pottery, Yorkshire.

Alderman J. B. INGLIS.—Quarter-guinea of George I.

A. W. LINFOOT.—Specimens of Little-ringed Plover, Ringed Plover, Song Thrush (var.) Pratincole, albino Mallard Drake, Tern, Bulwer's Petrel, Scaup Duck, Woodcock, Snowy Owl, Great Northern Diver (in immature plumage), Brown Rat, ancient Brass Monastic Lamp.

JAMES MACPHERSON.—Scotch Weavers Crusie; Whiskey Bells, in case.

W. A. PEARSON.—Roman Coins and York Half-Penny Copper Token.

H. M. PLATNAUER.—Book of Old Plays, including one published by Ward, Coney Street, York, 1773.

W. H. ST. QUINTIN.—Sport of Common Hare.

H. SOWDEN.—Darts of various Helicidae, and 74 species of British Land and Freshwater Shells.

Sir W. W. STRICKLAND, Bart.—Specimen of Night Heron, in case.

FRANK TERRY.—Stone from a late Norman Arch.

W. THOMSON.—Cancelled Five Pound Note (York & East Riding Bank).

W. TURNER.—Engraving of "York from the Manor," 1795.

Col. W. A. WHITE.—Recent Coral (India).

Miss WOLSTENHOLME.—English Copper and Silver Coins, and Copper Tokens.

W. P. WOOD.—Tooth Key.

G. YELD.—Four Rock specimens.

YORK, CORPORATION OF THE CITY OF.—Five pieces of Elton ware (loaned).

ADDITIONS TO THE LIBRARY

DURING 1921.

- J. BACKHOUSE.—Synopsis Flora Germaniae et Helveticae, by J. Kock, 2 vols., 1843-45.
- CHARLES BARLOW.—The Northern Microscopist. vols. 1-4; a Bibliography of Protozoa, by D'Arcy W. Thompson.
- BASLE, VERHANDLUNGEN DER NATURFORSCHENDEN GESELLSCHAFT IN BASLE. Bd. xxxi., 1919-20; Bd. xxxii. 1921.
- BELFAST, NATURAL HISTORY AND PHILOSOPHICAL SOCIETY.— Report and Proceedings, 1919-20.
- GEORGE BENSON.—Argiles de Speeton et leurs equivalents. A. Pavlow et G. W. Lamplugh, Moscow, 1892; Liverpool Free Public Library Museum and Gallery of Art. Catalogue of Mayer Museum, part 2, 1882.
- BERGEN MUSEUM.—Aarbok, 1918-19; 1919-20; Aarsberetning, 1919-20.
- Rev. Prof. T. G. BONNEY.—Philosophical Transactions of the Royal Society of London, 1921, ser. A. & B.
- BRISTOL NATURALISTS' SOCIETY.—Annual Report and Proceedings, vol. iii., 1919-21.
- FRANCIS BUCKLEY.—A Microlithic Industry.
- CALCUTTA.—Geological Survey of India; Records, vol. li., pt. 2-4, 1920; lii., liii., pt. i; Memoirs, vol. xlvi., pt. i.
- CALIFORNIA, UNIVERSITY OF.—List of Publications, Nov. 1919, 3rd series, xiii., no. 5.
- CHRISTIANIA, NORSKE METEOROLOGISCHE INSTITUTT.—Aarsberetning, 1919-20, etc.; Jahrbuch for 1920.
- CINCINNATI, LLOYD LIBRARY.—Mycological Notes and Pamphlets.
- CLEVELAND, NATURALISTS' FIELD CLUB.—Proceedings, 1914-19.
- Dr. WALTER E. COLLINGE.—An Account of the genus *Sedum*. By R. L. Praeger; The Food of some British Wild Birds, 1915.
- COPENHAGEN.—Memoires de l'Academie Royale des Sciences et des Lettres.
- CROYDON, NATURAL HISTORY AND SCIENTIFIC SOCIETY.—Proceedings and Transactions, ix., part 1.
- WM. DANMAR.—Modern Virvanaism.

- DUBLIN, ROYAL DUBLIN SOCIETY.—*Scientific Proceedings*, vol. xvi. nos. 26, 28.
- EDINBURGH, ROYAL SOCIETY.—*Proceedings*, xl., part 2.
- FLORENCE, BIBLIOTECA NAZIONALE CENTRALE DE FIRENZE.—*Boelettino delle Pubblicazioni Italiane*, 1921.
- GIESSEN, BERICHT DER OBERHESSISCHEN GESELLSCHAFT FÜR NATUR-UND HEILKUNDE ZU GIESSEN.—Med. Abt., Bd. 9, 10, & 12; Natur. Abt., Bd. 6 & 7.
- GLoucester.—*Sixth Report of Public Museum Committee*.
- HONOLULU.—*Hawaiian Volcano Observatory*. Bull. viii., no. 10, 12; ix., no. 1-7; x.
- HULL, MUSEUM.—*Publications*, 96, 122, 123.
- LEEDS, UNIVERSITY OF.—*Calendar*, 1921-22.
- LEEDS, YORKSHIRE GEOLOGICAL SOCIETY.—*Proceedings of*, vol. xix., part 5.
- LIMA, BOLETIN DEL CUERPO DE INGENIEROS DE MINAS DER PERU. No. 96, 100; *Anales del Congresso Nacional de la Industri Minera*, T. II., V., VIII.
- LONDON, TRUSTEES OF THE BRITISH MUSEUM (Natural History). *Handbook of British Lichens*; *Catalogue of Cretaceous Bryozoa*, vol. iii.; *Economic Series*, No. 12.
- GEOLOGICAL SOCIETY.—*Quarterly Journal*, lxxvii.
- GEOLOGISTS' ASSOCIATION.—*Proceedings of*, vol. xxxii., parts 2, 3, 4.
- LINNEAN SOCIETY.—*Journal*, 303.
- METEOROLOGICAL OFFICE.—*Weekly and Monthly Weather Reports and Supplements*; *Report of Proceedings of the 4th International Meteorological Conference*, Paris, 1919.
- H. M. STATIONARY OFFICE.—*Quarterly Return of Marriages, Birth, and Deaths, in England and Wales*, No. 288; *Report Education (Scotland)*, Report for 1920.
- ZOOLOGICAL SOCIETY.—*Proceedings*, part iv., 1920; i.—iii., 1921.
- MANCHESTER MUSEUM.—*Notes*, 26.
- MEXICO, INSTITUTO GEOLOGICO DE MEXICO.—Bull. 33, T. i. & ii.
- MONTEVIDEO, MUSEO NATIONAL.—*Anales*, s. 2, 4.
- NEWCASTLE-UPON-TYNE, NATURAL HISTORY SOCIETY.—*Transactions*, v., part ii., 1921.
- NEW YORK, ACADEMY OF SCIENCES.—*Annals*, xxxviii., xxix.
- Geographical Review, Index, vol. x., July-Dec., 1920.
- PUBLIC LIBRARY.—*Bulletin*, 1921.
- NORTHAMPTON, NATURAL HISTORY SOCIETY AND FIELD CLUB.—*Journal* xx., nos. 161-164.

- NORWICH, CITY OF.—Report of Castle Museum Committee, 1920.
- OXFORD, ASHMOLEAN NATURAL HISTORY SOCIETY.—Proceedings and Report, 1920.
- ASHMOLEAN MUSEUM OF ART AND ARCHÆOLOGY.—Report of the Visitors, 1920.
- UNIVERSITY MUSEUM.—Catalogue of Books added to Radcliffe Library, 1920.
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- PUSA, AGRICULTURAL RESEARCH INSTITUTE.—Review of Agricultural Operations in India, 1919-20; Scientific Reports of, 1919-20.
- SALISBURY, SOUTH WILTS AND BLACKMORE MUSEUM.—Annual Report, 1920-21.
- Prof. G. O. SARS.—An account of the Crustacea of Norway, VII. pt. vii-x; VIII. pts. 1, 2.
- SHEFFIELD, LITERARY AND PHILOSOPHICAL SOCIETY.—98th Annual Report.
- TORONTO, UNIVERSITY OF.—Studies, &c.
- TRONDHJEM, DET KONGELIGE NORSKE VIDENSKABERS SELSKAB.—Skrifter 1918-19; Aarsberetning 1918-19.
- UPSALA, GEOLOGICAL INSTITUTION, UNIVERSITY OF UPSALA.—Sweden; Historical and Statistical Handbook, 2 vols.
- VICTORIA, B.C.—Publications of Dominion Astrophysical Observatory, vol. i., no. 1.
- WALES, NATIONAL MUSEUM.—13th and 14th Annual Reports, 1919-20; 1920-21.
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- U.S.A., GEOLOGICAL SURVEY.—Bulletins and Professional Papers.
- NATIONAL MUSEUM.—Annual Report, 1920.
- G. YELD, M.A.—Journal of the Geographical Society, 1894-1913.

REGULATIONS FOR THE USE OF THE LIBRARY.

- i. The Library is open daily from 10 a.m. to 4 p.m.
- ii. Books may be obtained by application to the Keeper of the Museum, or the Library Assistant, who shall enter the name of the Member and the date of the delivery of the book in the Register. An Application Form must be filled up by the borrower.
- iii. No Member shall have more than three books from the Library at a time, except by special permission of the Council.
- iv. A book may be kept ONE MONTH. At the expiration of that time, if not wanted by another member, it may be renewed for the same time on being brought back. In the case of a member not resident in York, application by letter will be sufficient.
- v. Periodical Publications shall remain on the table of the Library until a new number appears. When borrowed they must be returned within SEVEN DAYS.
- vi. Books required by the Keeper of the Museum, or the Honorary Curators of Departments, in the execution of their office, may at any time be kept back from circulation, or reclaimed.
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- viii. Books shall be sent for and returned at the expense of the members who receive them, and loss or injury shall be made good by them.

WALTER E. COLLINGE,
Keeper of the Museum.

January, 1922.

PUBLICATIONS AND PAPERS

ISSUED BY MEMBERS OF THE MUSEUM STAFF, OR DEALING WITH MATERIAL
CONTAINED IN OR ADDED TO THE COLLECTIONS.

1. BELL, ALFRED.—Notes on the Later Tertiary Invertebrata
Annual Report Y.P.S. for 1920 (1921), pp. 1-20, pls. 1, 2.
2. COLLINGE, WALTER E.—The Starling: Is it Injurious to
Agriculture? *Journ. Minis. Agric.*, 1921, pp. 1114-1121,
4 figs.
3. —— A Preliminary Study of the Structure and Function of
the Cutaneous Glands in the Terrestrial Isopoda. *Ann. &*
Mag. N. H. (s. 9), vol. vii., pp. 212-222, pls. ii. & iii.
4. —— The Scarcity of Swallows. *Nature*, 1921, p. 628.
5. —— The Scarcity of Swallows in 1921. *Country Life*, 1921
(Sept. 17th), p. 361.
6. —— The Habits of the Little Owl. *Ibid.*, 1921 (Oct. 29th),
p. 558.
7. —— The Moor or Water Hen. *Ibid.*, 1921 (Nov. 5th), p. 5.
8. HARMER, F. W.—The Pliocene Mollusca of Great Britain.
Palaeontographical Soc., 1920, vol. ii., pt. 1, pp. 485-652,
pls. xlv.-lvi.; pt. 2, pp. 653-704, pls. liii.-lvi.

ON THE PLEISTOCENE AND LATER TERTIARY BRITISH INSECTS.

By ALFRED BELL.

FEW branches of Natural Science have been so much neglected as that of our British later tertiary Insect Fauna, not so much from want of material as will appear in the sequel, as from the fragmentary condition in which they usually occur. Hence they are frequently listed as elytra, insect remains, beetle wings, and the like vague and unsatisfactory references.

Those from earlier deposits have received more attention, but even of these, the late Rev. P. B. Brodie could say that he had more than 2,000 specimens still waiting determination in his collection.

OLIGOCENE.

Perhaps one of the most valuable contributions to our knowledge of this earlier fauna is the memoir by Dr. H. Woodward¹ detailing the finding by Mr. A'Court Smith of a fairly extensive series of these fragile forms in the freshwater oligocene marls at Gurnet Bay, near Cowes, in the Isle of Wight.

The fauna as interpreted contained the following items :—

- | | |
|---------------|--|
| Coleoptera. | <i>Staphylinus, Dorcus, Anobium, Curculio.</i> |
| Hymenoptera. | <i>Formica, Myrmica, Campanotus.</i> |
| Lepidoptera. | <i>Lithosia</i> ² <i>Lithopsyche antiqua, A. G. Butler.</i> |
| Diptera. | <i>Tipula, Phryganea.</i> |
| Neuroptera. | <i>Termes, Hemirobius, Perla, Agrion, and Libellula.</i> |
| Orthoptera. | <i>Gryllus, Acrididae.</i> |
| Hemiptera. | <i>Tricephora sanguinolenta.</i> |
| and a spider. | |

¹*Q.J.G.S.*, vol. xxiv., 1879, p. 344. ²*Proc. Zool. Soc., London*, 1889, p. 295.

This list was extended by Mr. Brodie in a paper on the insects of the Bagshot leaf beds (*Geol. Mag.*, 1893), and in another in the following year 1894, wherein he quotes Dr. Scudder who had examined his large series of Gurnet Bay fossils, the combined lists giving the following additional generic forms:—

- | | |
|--------------|---|
| Coleoptera. | <i>Helops</i> , <i>Cheironomus Boccus</i> (allied to) <i>Elater</i> (<i>Buprestis</i>), <i>Telephoridae</i> , and others. |
| Hymenoptera. | Ants and gnats, several sp. |
| Lepidoptera. | A moth and several butterflies. |
| Diptera. | <i>Tipula</i> (<i>Syrphidea</i> , and numerous others). |
| Orthoptera. | <i>Locusta</i> . |
| Neuroptera. | <i>Aphis</i> , <i>Cicada</i> . |

Amongst the spiders, *Gastyrus woodwardii* and an *Eperia* were recognised. Other Annulosa included caterpillars, myriapods, centipedes, and worms.

The ants have been studied by Mr. Donisthorpe (*Ann. & Mag. N.H.*, 1920, p. 81), who finds 8 genera and 15 species represented. The ants referred to *Fomicium brodei* and *Myrmeius leesii*, are assigned to sawflies. Prof. Cockerell, of Colorado, has also added to the number of insect remains from this very fertile horizon. The entire fauna needs a monograph to do it justice.

Amber.—A few species of various types preserved in this beautiful medium are described and figured in the *Norfolk and Norwich Natural History Society's Proceedings*, vols. iii. & iv., by Mr. Cl. Reid, and in vol. v. by Mr. Foord. The latter submitted drawings of the insects to one of the British Museum authorities (Mr. Waterhouse) who referred them to species of

- | | |
|--------------|---|
| Coleoptera. | <i>Clevus</i> , <i>Platypus</i> , <i>Tomicus</i> . |
| Hymenoptera. | <i>Apis mellifica</i> . |
| Diptera. | Gnats, <i>Cecidomia</i> , <i>Platyura</i> , <i>Chrysotus</i> & <i>Xiphandrium</i> . |
| Orthoptera. | <i>Blatta orientalis</i> , <i>Psochus</i> , sp. Also two spiders. |

Mr. Waterhouse did not actually see the specimens, only very exact drawings made by Mr. Foord. If the bee and cockroach were enclosed in the amber, they are the first examples known to our indigenous fauna. *Blatta* occurs in amber and it may have been a misidentification.

These lumps of insect-bearing amber were reported by the finders to have been picked up at various times on the East Anglian coast. Unfortunately the matrix is easily imitated by

other vegetable gums and a large number of showy insects embedded in Kauri or in copal were on sale at one time in London. Most of these were bought for the American market.

In 1878,¹ Mr. Herbert Goss gave a very full account of the Tertiary Insect Fauna of Europe, in which he referred to the few British forms then recognised at this early stage, such as two beetles from the Bauxite leaf beds near Antrim (Ballypallidy), the Bovey Tracy (Devonshire *Bupestris*, *Falconeri* Heer), and the leaf beds at Corfe in Dorsetshire.

Mr. Goss did not mention any later deposits, and it fell to me to embody in a leaflet in the *Entomologist* soon after, all that was known of the very scanty insect fauna of a newer period.

PLIOCENE.

Pliocene remains of the group are very rare in Britain. The fortunate discovery by Dr. C. Trechmann² of a fossiliferous peaty clay in some crevices of the rocks on the coast of Durham at Casle Eden, enabled M. Lesne to determine the pliocene age of the few species obtained. Some of these are undoubtedly insects still living in Britain.

CROMERIEN.

The Cromerien (forest bed) series of fluviatile deposits has yielded a considerable number of elytra, but at present very few of these have been identified. Those that have been are duly recorded in the accompanying lists.

LUSITANIAN.

Insects so closely follow the climate that their presence furnishes a valuable clue to the thermal conditions prevailing at the time of their inclusion, hence the small series obtained by the Rev. O. Fisher in a peat bed at Lexden, near Colchester, postulates a warmer climate than the present one, seeing that all the types are Lusitanian or transpyrenean in their habitat. Such was the opinion of one of the most eminent of the entomologists of that time, Mr. Wollaston. His report is embodied in Mr. Fisher's paper on this bed.³ In it he states that of the few species he had examined, none of them were specifically identical with any of the existing British forms unless it might be the ordinary *Coccinella*.

¹*Proc. Geol. Assoc.*, vol. v., p. 282.

²*Q.J.G.S.*, 1921.

³*Q.J.G.S.*, 1863, p. 394.

Two he could not refer to any genus now living in the British Isles, *Cossyphus* and *Curculio*. The whole is of a transpyrenean type. The genera which Mr. Wollaston provisionally recognised are *Cossyphus*, *Chrysomela*, *Cassida*, *Licinus* or *Buprestis*. If this is correct it adds another link to the chain of evidence in favour of Ed. Forbes' Lusitanian period, so ably advocated by Dr. Rudolph Scharff in his valuable papers. *The Selsey Deposit* (*Rept. Yorks. Phil. Soc.*, 1892) is another of this type.

PLEISTOCENE.

An important and valuable collection of about 30 species of insects, was obtained by Mr. A. Montgomerie Bell from a true pleistocene deposit at Wolvercote, near Oxford, and described by him first in the *British Association Reports*, 1901, dealing principally with and embodying the observations of Mr. C. Waterhouse upon the insects submitted to his judgment. A second paper treating of the other remains from this site appeared in the *Q.J.G.S.*, 1904. No record seems to have been kept, even if made, of the species found either by Mr. Bell or Mr. Waterworth to whom I applied for the information wanted. All that is known is that one specimen belonged to a genus of which only one species is known in England, but it is plentifully represented on the Continent. The collection is at present lost to science.

The same may also be said of the large series procured by my old friend, J. Bennie, of the Scottish Geological Survey, from the interglacial and later lake beds about Edinburgh. If anything, it was of even more scientific value than the Wolvercote series—so very few species being on record for the north. The glacial conditions that now began to manifest themselves were not favourable to the preservation of these delicate organisms. It might be that a search in the moorland peats of the Cleveland district of Yorkshire might yield the evidence required, and Arctic forms have not entirely died out there even now.

The researches of Mr. S. H. Warren¹ in the Essex late Arctic peats at Ponders End in the Lea Valley, Essex, and of Dr. J. E. Marr² in similar peats at Barnwell, near Cambridge, show that a fairly rich fauna was at one time extant.

The "Moorlog" or peaty masses dredged up on the³ Dogger Bank in the North Sea is of about the same age.

¹S. H. Warren, *Q.J.G.S.*, 1912, vol. 68; 1915, vol. 71.

²J. E. Marr, *Q.J.G.S.*, 1919, vol. 75, p. 227.

³Whitehead, *Essex Naturalist*, vol. xix., 1920-21, p. 242.

The name "Moorlog" was originally coined by Capt. Parry¹ to describe the derived peaty mass at the great break in the river wall at Dagenham on the Thames.

HOLOCENE.

Bogs, peats, fens and river alluvium should yield a rich harvest in an unworked field. Mr. A. S. Kennard tells me there is a quantity of unnamed Thames alluvial material in the British Museum and this seems to be the case elsewhere in other localities. I owe to the kindness of Mr. T. H. Thonless, of Norwich, a list of specimens found in the river alluvial in Norwich, and I owe that gentleman many thanks for the invaluable help I have received from him while preparing these lists.

The most unexplored ground I know of is Ireland, only two species, both from Ballybetagh bog, near Dublin, being recorded or known. Dr. Cronshaw, Brierly Hill Technical Institute, however, tells me he has a quantity of material gathered by himself from the bogs of W. Ireland, which I hope will one day be made known. It should throw some light upon the Lusitanian question.

Unexpected places often yield very satisfactory results, the site of the old Roman City of Caerwent having been especially productive. It is the only site on which these remains have been taken note of. Very few remains of insects, other than Coleoptera seem to have been noticed or preserved by collectors, or they have escaped my notice. Such as they are, I give them here. Dr. Berger² records finding bees and nests in the diluvium of the Isle of Man. Bees appear to have been known as early as the 4th century B.C., since one of our earliest visitors, Pytheas the navigator, refers to Kentish honey.

Galls, the work of a species of *Cyriops* have been found at Hitchin and the Ighthorn fissure in Kent. Traces of the craneflies have been found in a Wigtonshire Crannog, but the only named species I have seen mentioned are *Limnophilus flavicornis* from the alluvium at Windsor and *Stenophyla nigricornis* from Aberdeen. An earwig, *Forficula auricularis*, is mentioned from the site of Silchester, and other Neuroptera from the Furness upland peat and the Eastern Counties fenlands. *Cimex* is recorded from the Furness peats.

¹Phil. Trans., vol. 50, 1721.

²Trans. Geol. Soc. Lond., vol. v., p. 501.

Two mites have been noted. *Acarus faluniensis* from Cowden Glen, N.B. and *Nataspis* sp. from the Dogger Bank.

Caddis cases are more plentiful, having been found in the pleistocene silts of the Derwent and Erewash valleys in the Trent area, in the Lewes levels, at Redhall Hailes and the Cowden Glen in Scotland, at Ballaugh in the Isle of Man, and the Hull Docks excavations.

Abbreviations—Plioc(ene), Crom(erien), Lusit(anian), Pleist(ocene), Rom(an), Hol(ocene).

The following species of Coleoptera are mostly named after the list of British Coleoptera compiled by Messrs. Newbury & Thorpe, 1915.

GEODEPHAGA.

<i>Cicindela campestris</i> , Z.	<i>Trechus minutus</i> , Fabr.
Peat. Brancaster.	Rom. Caerwent.
<i>Cychrus rostratus</i> , L.	<i>Patrobus excavatus</i> , Payk.
Rom. Caerwent.	Intergl. Cowden Glen.
<i>Carabus catenulatus</i> , Scop.	<i>Chlaenius holosericus</i> , Fabr.
Rom. Caerwent.	Moorlog. Dogger Bank.
<i>Carabus nitens</i> , L.	<i>Licinus</i> , sp.
Pleist. Garvel Park (Greenock).	Lusit. Lexden.
<i>Carabus</i> , sp.	<i>Harpalus (Elater) angusta</i> . pre-glac. Mordesley.
Lusit. Lexden.	<i>Harpalus punicollis</i> , Payk.
Arct. Ponders End.	Rom. Caerwent.
<i>Leistus fulvibarbis</i> , Dej.	<i>Amara</i> , sp.
Rom. Caerwent.	Moorlog. Dogger Bank.
<i>Nebria brevicollis</i> , Fabr.	Rom. Caerwent.
Pleist. Whitehall, London.	<i>Plerostichni</i> , genus undescribed.
Rom. Caerwent.	Mid-plioc. Castle Eden.
<i>Notiophilus aquaticus</i> , L.	<i>Pterostichus cupreus</i> , L.
vel. palustris. Duft.	Rom. Caerwent.
Crom. Ostend.	<i>Pterostichus lepidus</i> , Fabr.
Moorlog. Dogger Bank.	Hol. Blackfriars, London.
<i>Elaphrus cupreus</i> , Duft.	<i>Pterostichus madidus</i> , Fabr.
Arct. Ponders End.	Crom. Trimingham.
<i>Clivina collaris</i> , Herbst.	Hol. Bermondsey.
Rom. Caerwent.	<i>Pterostichus nigrita</i> , Fabr.
<i>Bembidion lampros</i> ; Herbst.	Ballybatagh, Dublin.
Rom. Caerwent.	„ <i>niger</i> , Schall.
<i>Trechus amphicollis preglacialis</i> , Lesne.	Rom. Caerwent.
Mid-plioc. Castle Eden.	

<i>Pterostichus</i> , sp.	<i>Calathus fuscipes</i> , Geoz. (<i>cisteloides</i> , Panz.)
Intergl. Cowden Glen.	Rom. Caerwent.
Hol. Hornsea Mere.	<i>Calathus erratus</i> , Schl. (<i>flavipes</i> , Duft.)
<i>Pterostichus striola</i> , Fabr.	Moorlog. Dogger Bank.
Rom. Caerwent.	<i>Anchomenus (Agonum)</i> .
<i>Pterostichus vulgaris</i> , L.	Several species (names not given) are recorded from the pleist. of Ponders End; Cowden Glen; Moorlog, Dogger Bank. Hol. Norwich.
Rom. Caerwent.	
<i>Pterostichus cf. strenuus</i> , Pz.	
Intergl. Burnhead, near Airdrie, N.B.	
<i>Pterostichus (argutor). Strenuus</i> <i>pliocenicus</i> , Lesne.	
Plioc. Castle Eden.	

HYDRADEPHAGA.

<i>Agabus bipunctulatus</i> .	<i>Dytiscus</i> sp.
Cambridge Fens. Hornsea Mere	Pleist. Cowden Glen.
<i>Agabus</i> sp.	<i>Gyrinus</i> sp.
Pleist. Ponders End.	Pleist. Kelsey Hill in Holderness.
<i>Ilybius aenescens</i> , Thoms.	
Cowden Glen.	
Moorlog. Dogger Bank.	

PALPICORNIA.

<i>Hydraena reidii</i> , Lesne.	<i>Coelostoma (Cyclonotus)</i> <i>orbicularis</i> , Fabr.
(new species).	
Mid. plioc. Castle Eden.	Moorlog. Dogger Bank. Fenlands, in peat.
<i>Hydrobius fuscipes</i> , L.	<i>Cercyon</i> .
Pleist. Ponders End.	Moorlog. Dogger Bank. Four or five species are known from (Rom.) Caer- went.
<i>Philhydrus</i> , sp.	
Moorlog. Dogger Bank.	

BRACHELYTRA.

<i>Othius fulvipennis</i> , Fabr.	<i>Xantholinus punctillatus</i> , Payk.
Rom. Caerwent.	Rom. Caerwent.
<i>Xantholinus linearis</i> , Olivier.	
Mid. plioc. Castle Eden.	
Rom. Caerwent.	

CLAVICORNIA.

Choleva.

Three or four species occurred at the Roman site of Caerwent.

Necrophorus humator, Fabr.
Rom. Caerwent.

Silpha (Phosphuga) atrata, L.
Rom. Caerwent.

Silpha dispar, Herbst.
Crom. Bacton.

Silpha tristis, Ill. (*granulus*,
Thunb.)
Rom. Caerwent.

Silpha (Phosphuga)
subrotundata, Steph.
Ballybetagh bog, Dublin.

Hister cadaverinus, Hoffm.

Holo. Bermondsey alluvium
London.

Hister, sp.
Pleist. Kirmington and
Bielbecks, Yorkshire.
Rom. Caerwent.

Lathridius nodifer, Westwood.
Mid. plioc. Castle Eden.

Coccinella, sp.
Lusit. Lexden, in peat.

Byrrhus, sp.
Mundesley. Norfolk cliffs.

LAMELLICORNIA.

Oxyomus porcatus, Fabr.
(*silvestris*, Scop.)
Rom. Caerwent.

Aphodius granarius, L.
Rom. Caerwent.

Aphodius, sp.
Pleist. Ponders End.
Moorlog. Dogger Bank.

Aegialia, sp.
Pleist. Ponders End,
Walthamstow.

Geotrupes spiniger, Marsh.
Hab. Bermondsey.
(Thames alluvium).

Geotrupes stercorarius, L.
(*putridarius*, Er.)
Intergl. Hailes, Dalry, N.B.
Rom. Caerwent.

Geotrupes vernalis, L.
In peat. St. Heliers, Jersey.

Copris lunaris, L.
Mundesley (in river bed).
Norfolk, Fenland peats.

STERNOXIA.

Lacon (Brachylacon) murinus, L.
Mundesley (in river bed),
Norfolk.

Agriotes obscurus, L.
Rom. Caerwent.

Campylus (Elater) linearis, L.
Mundesley (river bed),
Norfolk.

Campylus (Elater) sp.
Fenlands (in peat).

Buprestis, sp. Lexden.

Athous vittatus, Fabr.
Rom. Caerwent.

Campylus (Denticollis) linearis, L.

MALACODERMATA.

Dascillus (Atopa) cervinus, L.
Fenlands (in peat).

TEREDILIA.

<i>Anobium domesticum</i> , Fourc.	<i>Anobium (Hadrobregna)</i> sp.
Mid. plioc. Castle Eden.	(Extinct).
Rom. Caerwent.	Castle Eden. (Lesne.)

PHYTOPHAGA.

<i>Cassida</i> , sp.	<i>Donacia vulgaris (typhae</i> , Brahm.)
Lusit. Lexden.	Moorlog. Dogger Bank.
<i>Donacia clavipes (menyanthidis</i> , Fabr.)	<i>Donacia</i> , sp.
Moorlog. Dogger Bank.	Pleist. Bielbecks, Kirmington, ton, Yorkshire; Ponders End; Cowden Glen.
<i>Donacia crassipes</i> , Fabr.	Hol. Hornsea Mere.
<i>Donacia lemniae</i> , Fabr.	<i>Plateumaris (Donacia) sericea</i> , L.
Hol. Blackfriars.	Crom. Bacton Overstrand.
Thames alluvium.	Norfolk cliffs.
<i>Donacia limbata</i> , Panz.	Mundesley.
Hol. Norwich (in peat).	Pleist. Ponders End.
<i>Donacia linearis</i> , Hoppe.	Moorlog. Dogger Bank.
Cromer. Bacton.	Norwich (in peat).
Mundesley (in river bed).	<i>Timarcha</i> , sp.
Fenlands (in peat).	Crom. Norfolk cliffs.
<i>Donacia semicuprea</i> , Panz.	<i>Chrysomela</i> , sp.
Hol. Norwich (in peat).	Lusit. Lexden.
<i>Donacia simplex</i> , Fabr.	Pleist. Bielbecks, Ightham fissure, Kent.
Moorlog. Dogger Bank.	
Hol. Norwich (in peat).	

RHYNCHOPHORA.

<i>Otiorhynchus maurus</i> , Gyll.	<i>Scaphilus muricatus</i> , Fabr.
Intergl. Burnhead, near Airdrie, N.B.	Rom. Caerwent.
Moorlog. Dogger Bank.	<i>Rhinonchus</i> , sp.
<i>Otiorhynchus</i> , cf. <i>ligneus</i> .	Rom. Caerwent.
Moorlog. Dogger Bank.	<i>Curculio</i> , sp.
<i>Otiorhynchus</i> , sp.	Lusit. Lexden.
Pleist. Ponders End, Gar- vel Park, Igtham fissure, Whitehall.	<i>Baris (Limnobaris) plicistriata</i> , Sheph.
	Moorlog. Dogger Bank.

Balanina nuceus, (? nusum).
Pleist. Trent Valley.
Nuts bored by this beetle
are found in the Thorne
Waste, York. *Geology, Nat.*
1920, p. 353.
Apion, cf. *humile*, G.
Moorlog. Dogger Bank.

Apion aenum, Fabr.
Rom. Caerwent.
Apion radiolus, Kirby.
Rom. Caerwent.
Hylesinus fraxini, Fabr.
Pleist. Hoxne.

HETEROMERA.

Blaps similis, Latr.
Rom. Caerwent.
Gnathoceros cornutus, Fabr.

Helops striatus, Fourc.
Peat. St Heliers, Jersey.

Dr. Marr kindly informs me that the insects from the Arctic Barnwell bed (p. 44) are now being investigated.—A.B.

Since the above was sent to press, I have received the following interesting communication from Dr. Cronshaw regarding the Irish peat and insect fauna. When complete, the whole will be issued in one of the Royal Society's reports, and be a valuable acquisition and service to the insect fauna and flora of a comparatively unworked horizon. Of the plants, I may say that there are many lists of the plants that go to make peat, but very few records of the plants that have actually been observed in it.

"Dr. H. B. Cronshaw has made a study of the various sections exposed in a number of Irish peat deposits, mostly situated in the Central Plain. Samples of peat were cut from the several layers into which the deposits may be divided on the basis of variations in the character of the plant remains. From these samples the seeds and insect remains were subsequently separated, and the following list represents the insects identified by Mr. G. N. Halbert of the National Museum of Ireland in the first collection of insect remains. These occurred in the peat deposits down to a depth of about 12 feet. *Tegeveranus cepheiformis* is interesting as probably representing the first recorded occurrence in Ireland. The list given is incomplete as a further collection of insect remains is at present undergoing examination."

Dr. Cronshaw writes me—"The rest of insect remains are with Dr. Gahan, Keeper of the Insect Dept., Nat. Hist. Museum, South Kensington, who has offered to help with the naming."—A.B.

List of insects separated from samples of Irish peat by Dr. H. B. Cronshaw, and identified by Mr. G. N. Halbert of the National Museum of Ireland :—

Family.

Coleoptera-

Curculionidae. *Ceuthorrhynchus ericae*, Gyll. = *Micrelus ericae*.

Staphylinidae. *Staphylinus erythropterus* (L.)

Othius fulvipennis (F.)

Silphidae. *Agathidium laevigatum* (Gr.)

Chrysomelidae. *Donacia sericea* (L.) { Cannot be distinguished.

comari (Suffr.) { Probably the latter.

[= *Plataumaris* (*Donacia*) *discolor*.]

Carabidae. *Cychrus rostratus* (L.)

Pterostichus striola (F.) [*Abax striola*.]

„ *nigrita* (F.).

„ *diligens* (Sturm.)

Dytiscidae. *Agabus unguicularis* (Thoms.)

Hydroporus, sp.

Acarina-

Uropodidae. *Cilliba cassidea* (Herm.)

Oribatidae. *Pelops acromia* (Herm.)

Oribata stagnatilis (Hull.)

„ *ovalis*. (C. L. Koch.)

Tegeveranus cepheiformis (Nic.) (First Irish specimen)

Nolaspis cipilis (Herm.)

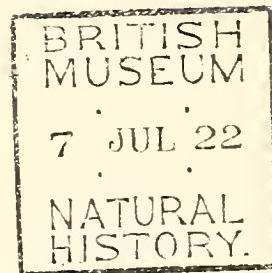
„ *lacustris*. (Michael.)

Hermannia nanus (Nic.)

Hymenoptera-

Formicidae. *Myrmica*, sp.

Amber.—It may be mentioned here, that a very fine collection of Amber and Amber Insects are on exhibit in the Sedgwick Museum, Cambridge.



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WALTER E. COLLINGE,
Keeper of the Museum.

APRIL, 1922.

